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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of  
Moriyasu SHIMOJO, et al.                      Group Art Unit: 1714  
Appln. No.: 09/720,343                      Examiner: Katarzyna W. Lee  
Filed: December 22, 2000  
For: THERMOPLASTIC RESIN COMPOSITION AND INJECTION MOLDINGS  
THEREOF

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6/3/03  
jc

D E C L A R A T I O N

Honorable Commissioner of Patents  
Washington, D. C. 20231

Sir:

I, Moriyasu SHIMOJO, a citizen of Japan, residing at 1-9-1032, Yushudainishi, Ichihara-shi, Chiba, Japan, declare:

That I graduated from the master course of Tokyo Institute of Technology, Interdisciplinary Graduate School of Science and Engineering, Electronic Chemistry in March, 1991;

That I entered SUMITOMO CHEMICAL COMPANY, LIMITED in April 1991, and have been engaged in the studies of:

- Polypropylene composite materials in Petrochemicals Research Laboratory from April 1991 to December 1991;

- Molding processes in Plastics Technical Center from January 1992 to March 1995;

- Polypropylene composite materials in Petrochemicals Research Laboratory from April 1995 to March 2002; and

- Polypropylene composite materials in Sumitomo Mitsui Polyolefin Co., Ltd. from April 2002 to date;

That I am a Chief Researcher of Automotive Materials Team in Polypropylene Research Group in Technology and Development Department of said company;

That I am one of the co-inventors of the above identified application, and familiar with the disclosure and the claims of the said application;

That I have read and understood the Official Action with the mailing date of November 27, 2002;

That I believe that it is clear from Table 6 on page 54 of the specification, which compares the results of Examples 1-3 and 5 with those of Comparative Examples 1-3, that the thermoplastic resin composition is obtained by melt-kneading a mixture comprising (1) a crystalline polypropylene-based resin, (2) an elastomer comprising a vinyl aromatic compound-containing rubber and an ethylene- $\alpha$ -olefin random copolymer rubber, the ethylene- $\alpha$ -olefin random copolymer rubber comprising an ethylene-octene random copolymer rubber, and (3) talc, as well

as the thermoplastic resin composition satisfies the conditions (a) - (c) recited in claim 1, for achieving the objects of the invention of the above-identified application;

That in order to clarify whether Examples 1-3 and 5 and Comparative Examples 1-3 satisfy the conditions (a) and (b) recited in claim 1, I have conducted the following experiment:

### Experiment

For Examples 1-3 and 5 and Comparative Examples 1-3, thermoplastic resin compositions were provided using the same components in the same proportions as indicated in Table 5 on page 53 of the specification except for incorporating no talc. The long period recited in section (a) and the particle diameter recited in section (b) were determined, to see if Examples 1-3 and 5 and Comparative Examples 1-3 satisfy the conditions (a) and (b) recited in claim 1. The results are summarized in Table I below.

**Table I**

	Examples				Comparative Examples		
	1	2	3	5	1	2	3
BC	38	38	38	38	38	38	38
PP	31.6	32.9	31.6	32.9	32.9	32.9	32.9
EOR-1		9.4	11.4	19.5	9.4	9.4	29.1
EOR-2	9.4		11.4				
EBR-1	11.4	10.1			10.1	10.1	
SEBS-1			7.6				
SEBS-2	9.6	9.6		9.6			
SEBS-3					9.6		
SEBS-4						9.6	
Total	100	100	100	100	100	100	100
Condition (a)							
Long period (nm)	22	22	23	22	21	25	23
Cond. (a) is satisfied	YES	YES	YES	YES	YES	NO	YES
Condition (b)							
Particle diameter (nm)	21	22	22	21	33	Rod-form	No phase separation
Cond. (b) is satisfied	YES	YES	YES	YES	NO	NO	NO

Thus, the compositions of Examples 1-3 and 5 satisfy the conditions (a) and (b). In contrast, the composition of Comparative Example 2 does not satisfy the conditions (a) and (b), and the compositions of Comparative Examples 1 and 3 do not satisfy the condition (b).

It is clear from the data of  $\Delta T_g$  for the compositions of Examples and Comparative Examples in Table 6 on page 54 of the specification

that the compositions of Examples satisfy the condition (c), wher as the compositions of Comparative Examples 1 and 3 do not satisfy the condition (c).

As seen in Table 6 on page 54 of the specification, the compositions of Examples 1-3 and 5 are excellent in rigidity, impact strength and fluidity, and excellent in appearance of molded articles, which is free from flow marks. In contrast, the compositions of Comparative Examples 1 and 2 are undesirable for their remarkably low tensile elongation at break. The composition of Comparative Example 3 is undesirable for its poor appearance of the molded article having flow marks formed due to its inferior moldability.

In conclusion, the compositions according to the invention of the application identified above are superior in physical properties such as rigidity and impact strength, in processability such as fluidity, and in moldability, attributable to the fact that the compositions comprises the components (1)-(3) recited in claim 1 as well as satisfy the conditions (a), (b) and (c) also recited in claim 1.

However, when thermoplastic resin compositions comprising the components (1)-(3) recited in claim 1 do not satisfy any of the conditions (a), (b) and (c), they do not provide satisfactory performances.

I believe that the above results are unexpected and surprising in view of the three cited references each alone or in combination. I believe that the invention of the above-identified application is unobvious in view of the three cited references.

The undersigned declarant declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this 15<sup>th</sup> day of May, 2003

Moriyasu Shimojo  
Moriyasu SHIMOJO